CE8511 SOIL MECHANICS LABORATORY

DETAILED SYLLABUS

OBJECTIVE:

- To develop skills to test the soils for their index and engineering properties and to characterise the soil based on their properties.

EXERCISES:

1. DETERMINATION OF INDEX PROPERTIES

a. Specific gravity of soil solids

b. Grain size distribution – Sieve analysis

c. Grain size distribution - Hydrometer analysis

d. Liquid limit and Plastic limit tests

e. Shrinkage limit and Differential free swell tests

2. DETERMINATION OF INSITU DENSITY AND COMPACTION CHARACTERISTICS

a. Field density Test (Sand replacement method and core cutter method)

b. Determination of moisture – density relationship using standard Proctor compaction test.

c. Determination of relative density (Demonstration only)

3. DETERMINATION OF ENGINEERING PROPERTIES

a. Permeability determination (constant head and falling head methods)

b. One dimensional consolidation test (Determination of Co-efficient of consolidation only)

c. Direct shear test in cohesionless soil

d. Unconfined compression test in cohesive soil

e. Laboratory vane shear test in cohesive soil

f. Tri-axial compression test in cohesionless soil (Demonstration only)

g. California Bearing Ratio Test